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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|---------------------|
| 09/435,854 | 11/08/1999 | TIMOTHY R. PRYOR | P00891US3 | 5796 |
| 7590 | 12/14/2004 | | EXAMINER | |
| LARSON & TAYLOR SUITE 900 1199 NORTH FAIRFAX STREET ALEXANDRIA, VA 22314 | | | | ABDULSELAM, ABBAS I |
| | | ART UNIT | PAPER NUMBER | 2674 |

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|--------------------|--------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/435,854 | PRYOR |
| | Examiner | Art Unit |
| | Abbas I Abdulselam | 2674 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 12 August 2004.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-5, 7, 9-12, 15-18, 20-22 and 27-61 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) 21, 22 and 44-50 is/are allowed.
 6) Claim(s) 1-4, 7, 9-12, 15-18, 20, 27-40, 42, 43, 51-54 and 56-60 is/are rejected.
 7) Claim(s) 5, 41, 55 and 61 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____.

DETAILED ACTION***Response to Arguments***

1. Applicant's arguments, see paper # 16, filed 01/20/04, with respect to the rejection(s) of claim(s) 1-22 and 27 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the response made by the applicant.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 7, 9-12, 15-18, 20, 27-40, 42-43, 51-54, 56-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zimmerman et al. (USPN 4988981) in view of Hisano et al. (USPN 4654872) and Best (USPN 4305131).

Regarding claims 1, 5 and 27, Zimmerman teaches computer data entry and manipulation method and an apparatus (10) including a glove assembly (12), position sensing receiver assembly (20) around the screen (28). Zimmerman teaches that the glove assembly contains sensors detecting the flexing of the fingers and other gestures of the hand and also contains one or more ultrasonic transducers (17) for transmitting signals to receivers (20). Further,

Zimmerman teaches that the glove assembly sends signals and enters commands into the computer (16), and the command relates to the manipulation of virtual objects created by the computer and displayed on the display screen. In addition, Zimmerman teaches that movement by the glove assembly in plane parallel to the display screen produces the corresponding movement by the cursor. See Fig 3, lines 5-52 and FIG 1, col. 1, lines 10-16, col. 3, lines 53-64 and Fig 6. However, Zimmerman does not teach "electro-optically determining , using at least one TV camera, a position of one or more points on a user or an object. On the other hand, Hisano teaches a system for recognizing a three-dimensional object, the system including TV cameras that picks up images of the object. Hisano further teaches that that feature points are extracted from each of at least three images (See the abstract). For example, Hisano teaches that images of an object are formed by the optical systems of two TV cameras (20R, 20L) such that the object has a "feature point", Q as shown in Fig 1, and Fig. 2

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zimmerman's method of manipulating virtual objects to adapt Hisano's identification of "feature points" on an object as shown in Fig. 1 and Fig. 2. One would have been motivated in view of the suggestion in Hisano that the identification of points on the object as illustrated in Fig (1-2) satisfies the desired determination of a position of a point on an object. The use of object-point identification helps recognize the position, shape and size of a three-dimensional object as taught by Hisano.

Zimmerman does not teach an interactive gaming. Best teaches a form of entertainment in which one or more people can participate in a motion picture by steering it in a direction of their own choosing and with the consequences of their participation explicitly performed by

motion picture images and voices of actors or cartoon characters col. 3, lines 38-45. Best teaches that the entertainment may be used for interactive devices, which present a friendly talking face (an animated cartoon) for interaction with unskilled users. Best further teaches that the entertainment may be used in talking vending machines which play various recorded messages accompanied by a TV screen image of digitally-generated talking face, and mentions the use of facial expressions, gestures, tone of voice, and head positions, as well as lip positions. (col. 32, lines 13-15 and col. 33, lines 50-57).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zimmerman's computer system to adapt it for entertainment purpose. Because both Zimmerman and Best teach about computer based gestures and interactions with a display screen, and one of ordinary skill in the art would have looked toward Best for the purpose of discovering applicable areas.

Regarding claim 2, Hisano teaches the use of two tow TV cameras (20R, 20L). See Fig. 2.

Rearing claims 3, 32, 39-40, 54 and 56. It would have been obvious to utilize Hisano's cameras (20R, 20L) in Zimmerman's computer system (10) of Fig. 1, and it would have been obvious to replace the two cameras by one camera. In addition, Best teach the use of a camera-originated video col. 6, lines 59-65

Regarding claim 4, see Fig 1 (26, 28).

Regarding claims 33-34, 37, 42, 51, 57 and 60, Zimmerman teaches the distances measured between the glove and the three receivers in terms of coordinates (x, y, z) in rectangular coordinate system. See col. 6, lines 11-32.

Regarding claim 7, Zimmerman teaches a glove with sensors for detecting and flexing of finger joints and contacts on different parts of the hand. See col. 1, lines 42-45.

Regarding claims 9, 11-12, 15, 36, 38 and 59 see Zimmerman's Fig 1 (20, 22, 24, 28).

Regarding claim 10, Zimmerman teaches the method of manipulation with respect to tools such a virtual steering wheel. See col. 1, lines 52-68.

Regarding claims 16-18, 20 and 58, Zimmerman teaches that as the user of the system moves his hand in space, the position and orientation of the glove are continuously detected. See col. 8, lines 10-19, and Fig 6 (140).

Regarding claims 35 and 52-53, Hisano teaches recognition of three dimensional object using cameras (col. 1, lines 20).

Allowable Subject Matter

3. Claims 21-22 and 44-50 allowed.

4. Claims 5, 41, 55 and 61 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Abbas Abdulsalam** whose telephone number is **(703) 305-8591**. The examiner can normally be reached on Monday through Friday (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard Hjerpe**, can be reached at **(703) 305-4709**.

Any response to this action should be mailed to:

Commissioner of patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand delivered responses should be brought to Crystal Park II, Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology center 2600 customer Service office whose telephone number is (703) 306-0377.

Abbas Abdulselam

Examiner

Art Unit 2674

November 27, 2004



XIAO WU
PRIMARY EXAMINER